Nebraska Epidemiology

Nebraska Health and Human Services System P.O. Box 95007 Lincoln, NE 68509-5007

TO: Nebraska Health Care Providers

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SUBJECT: Physician Advisory for Mumps

In the past week Nebraska Health and Human Services System, Office of Epidemiology received several reports of patients with positive mumps IgM serologies or clinical symptoms consistent with mumps in residents of Adams County (Hastings), Jefferson County (Fairbury), and Hamilton County (Aurora). Iowa is currently experiencing a large outbreak of mumps at the present time, with over 220 reported cases year-to-date. While most of these reports are from eastern Iowa, cases are now appearing in the western part of the state. Most of the affected patients are college-aged, and around 60% have had 2 doses of MMR.

Clinical Information:

Mumps is a viral illness. The classic symptom of mumps is parotitis, most commonly bilateral which develops an average of 16 to 18 days after exposure. Nonspecific symptoms associated with mumps include myalgia, anorexia, malaise, headache, and a low-grade fever, which may precede parotitis by several days. Orchitis, mastitis, and aseptic meningitis may occur. Fever may persist for 3-4 days and parotitis, when present, usually lasts 7-10 days. Persons with mumps are usually considered infectious from 3 days before until 4 days after onset of parotitis. Because mumps outbreaks have occurred in highly vaccinated populations, the diagnosis should not be discounted in persons who have received the vaccine. Mumps is reportable to public health within 7 days of detection or diagnosis according to the Nebraska Administrative Code (NAC) 173 1-003.02.

Possible explanations of mumps disease in immunized persons include:

1. **Primary vaccine failure: not everyone seroconverts and develops immunity following vaccination.**
2. **Vaccine mishandling: there may be primary vaccine failure due to deteriorated vaccine if it has not been stored properly with cold chain maintenance.**
3. **Waning of immunity, which seems less likely in persons who have been vaccinated in the recent past.**

Testing:

It is important to confirm the diagnosis in person suspected of mumps infection. A combination of tests is recommended to confirm the diagnosis:
1) Parotid gland swab (this requires viral transport media) and clean-catch urine for viral culture. Culturing can be done up to nine days following onset of symptoms by vigorous rubbing of the tonsils, oropharynx and the area around the opening of the parotid glands (Stensen's ducts). The duct is a 2 mm raised bump with a central hole found on the mucous membrane of the inner cheek by the 2nd upper molar, bilaterally, and may appear as a bluish papilla. It is often difficult to see, but can be felt by the patient with their tongue. Massage the cheek from back to front by stroking forward from the ear to the front of the face. Observe the Stensen's duct for clear fluid and collect the fluid if there and swab the area if not. Saliva specimen requires viral transport media during shipping. Do not use calcium alginate swabs or swabs on wooden shafts. Refrigerate specimens at 2-8°C immediately after collection. DO NOT FREEZE;

2) serologic testing to detect IgM antibody in an "acute" specimen; and

3) an "acute" IgG specimen (this will only be run if a "convalescent" specimen is collected 14 days of more after the "acute" specimen is collected).

To facilitate our understanding of the epidemiology of this disease in Nebraska, we are providing testing for mumps at public health expense for specimens submitted to the Nebraska Public Health Laboratory, using an NPHL requisition (obtained at this website: www.hhss.ne.gov/epi/mumps). We will notify Nebraska health care providers if this policy changes.

Ideally specimens for all three types of testing should be collected: urine specimen, parotid gland swab, and serum. At a minimum, a parotid gland saliva swab specimen placed in viral transport media should be submitted for culture. Contact your local health department or the Nebraska Health and Human Services System at 402-471-2937 to report a suspected case and to obtain guidance on specimen testing and transport to the Nebraska Public Health Laboratory.

Vaccination:

Two doses of mumps vaccine, given as combination MMR vaccine, separated by at least 4 weeks, are routinely recommended for all children. The first dose should be given on or after the first birthday; the second is routinely given at 4 - 6 years of age. Mumps–containing vaccine given before 12 months of age should not be counted as part of the series. Those vaccinated with mumps-containing vaccine before 12 months of age should be revaccinated with two doses of MMR vaccine, the first of which should be administered when the child is at least 12 months of age. MMR is a live, attenuated vaccine. Pregnant women and persons with immunodeficiency or immunosuppression should not receive live attenuated vaccines.

Because MMR is a live vaccine, handling of it is important to maintain its efficacy. Please go to the following web site for information on handling and storage of this vaccine.
http://www.cdc.gov/nip/publications/vac_mgt_book.htm#mmr
For an excellent discussion about mumps and mumps vaccine:
http://www.who.int/vaccines/en/mumps.shtml

Please contact your local health department or the Nebraska Health and Human Services System at 402-471-2937 with questions or to report a case.

Recommendations to Protect Health Care Workers:

There may be an increased risk for mumps in Nebraska at this time. Infected persons are likely to seek treatment at health care facilities. Nonimmune health care workers exposed to susceptible persons may need to be excluded from patient care for up to two (2) weeks. To protect health care workers and to avoid significant disruption in health care delivery from such exposures we are recommending that all health care institutions (e.g. inpatient, outpatient, public and private) ensure that those who work within their facilities are immune.

Infection Control Considerations: Mumps is transmitted by contact with virus-containing respiratory secretions, including saliva. The portals of entry are the nose and mouth. The incubation period varies from 12 to 25 days and is usually 16 to 18 days. The virus may be present in saliva for 6 to 7 days before parotitis and may persist for as long as 9 days after onset of disease. However, transmission has not been documented from an infected person beyond 4 days following onset of symptoms. Exposed personnel may be infectious for 12 to 25 days after their exposure, and many infected persons remain asymptomatic. Droplet precautions are recommended for patients with mumps. Such precautions should be continued for 9 days after the onset of parotitis.

Health care facilities are advised to insure that all health care workers are fully immune with: 1) documentation of two MMRs, or 2) serologic evidence of immunity, or 3) age over 65 years, in which case natural immunity from acquired disease can be assumed.

Considerations:
-Staff over 65 years of age most likely has natural immunity due to disease.
-Staff from 45-65 years of age should prove immunity through documentation of vaccination or positive IgG serology. Those in this age group grew up when the chance of exposure to wild mumps virus was markedly declining (thus escaping "natural" immunity) and when the opportunity to receive mumps vaccine was uncertain.
-Staff less than 45 years of age can be assumed to have one dose of MMR if they went to school in Nebraska and received the required immunizations. A second dose should be given if not previously documented in the person's medical history.

The time to address this is now. All health care settings are strongly encouraged to ensure that staff are protected from all vaccine-preventable diseases by maintaining a fully-vaccinated workforce. This will also prevent the spread of these diseases to patients, and from patients to the healthcare workforce.

For guidance with the recommended actions, please call your local health department, or contact the Office of Epidemiology at NHHSS (402-471-2937).

The Advisory Committee on Immunization Practices (ACIP) recommendations on:
Immunization of Health-Care Workers may be found at:
http://www.cdc.gov/mmwr/preview/mmwrhtml/00050577.htm
Measles, Mumps, and Rubella Vaccine Use may be found at:
http://www.cdc.gov/mmwr/preview/mmwrhtml/00053391.htm

As specified in Nebraska public health regulations (http://www.sos.state.ne.us/hhs/t173-1.pdf), health care providers, including physicians, hospitals and laboratories, should report persons with suspected or confirmed mumps to your local health department. For additional assistance contact our office at NHHSS (402-471-2937).

FACT SHEET
MUMPS (Infectious parotitis)

What is mumps?
It is an infection caused by the mumps virus.

How is mumps spread?
Mumps is spread by airborne transmission with mucus or droplets from the nose or throat of an infected person, usually when a person coughs or sneezes.

Who gets mumps?
Anyone, but it is more common in infants, children and young adults. Of people who are not immunized, >85% will have mumps by adulthood, but symptoms may have been mild and therefore not recognized.

What are the symptoms of mumps?
The most common symptoms are fever, headache, and swollen salivary glands under the jaw. The disease can lead to hearing loss, aseptic meningitis (infection of the covering of the brain and spinal cord) and, in 20% to 30% of males who have reached puberty, the disease can cause painful, swollen testicles.

How soon do symptoms appear?
They may appear 12 - 25 days after infection, but usually within 18 days.
How long is an infected person able to spread the disease?
From 3 days prior to the onset of symptoms to 4 days after.

Can infection with mumps occur more than once?
No.

What is the treatment for mumps?
There is no specific treatment. Supportive care should be given as indicated.

Is there a vaccine to prevent mumps?
Yes. Two doses of mumps-containing vaccine, given as combination MMR vaccine, separated by at least 4 weeks, are routinely recommended for all children. The first dose is given on or after the first birthday; the second is given at 4 - 6 years of age. MMR is a live, attenuated vaccine. Pregnant women and persons with immunodeficiency or immunosuppression should not receive live attenuated vaccines.

What can be done to stop the spread of mumps?
Anyone with mumps should not go back to child care, school or work until 5 days after symptoms began or until they are well whichever is longer. Contacts to a mumps case should have their immunization status evaluated. Anyone who has not received 2 doses of a mumps-containing vaccine (preferably MMR vaccine) should be vaccinated. Persons who may have been exposed should be educated on the signs and symptoms of mumps disease and should seek medical attention as soon as any of these symptoms begin.